

[Review Form 2](#)

Book Name:	Research Advances in Environment, Geography and Earth Science
Manuscript Number:	Ms_BPR_2245
Title of the Manuscript:	Sensitivity of SWAT Simulated Runoff to Temperature and Rainfall in the Upper Awash Sab-Basin, Ethiopia
Type of the Article	Book chapter

PART 1: Review Comments

Compulsory REVISION comments	Reviewer's comment	Author's Feedback <i>(Please correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)</i>
Please write a few sentences regarding the importance of this manuscript for the scientific community. Why do you like (or dislike) this manuscript? A minimum of 3-4 sentences may be required for this part.	This manuscript is important for the scientific community as it addresses the critical issue of how climate variables, such as temperature and rainfall, influence water availability in a vital region like the Upper Awash sub-basin. By utilizing the well-established SWAT model for sensitivity analysis, the study provides valuable insights into how climate change could impact hydrological systems, which is crucial for water resource management and planning in the face of increasing climate variability. I appreciate the thorough methodology, including model calibration and validation, which lends credibility to the findings.	
Is the title of the article suitable? (If not please suggest an alternative title)	I think the title can be modified as follows: "The Effects of Temperature and Rainfall on the Runoff in the Upper Awash Sab-Basin, Ethiopia"	
Is the abstract of the article comprehensive? Do you suggest the addition (or deletion) of some points in this section? Please write your suggestions here.	The abstraction is okay but has many details that are not necessary. For instance, you described all temperatures and corresponding effects on the runoff which can be shown in a summary. Another mistake I noticed, was where you wrote "The results shown that runoff was sensitive to rainfall and temperature changes in the study area." Which is supposed to be "The results showed that runoff was sensitive to rainfall and temperature changes in the study area."	
Are subsections and structure of the manuscript appropriate?	My suggestion structure: <ol style="list-style-type: none"> 1. Introduction <ul style="list-style-type: none"> o Clearly outline the context, research objectives, and importance of the study. 2. Methodology <ul style="list-style-type: none"> o Study Area: Describe the geographical region, climate, and other relevant characteristics of the area. This helps readers understand the context of the research and is often included as part of the methodology because it defines the setting where the methods are applied. o SWAT Model Description: Introduce the SWAT model, including its components, inputs (e.g., rainfall, temperature data), and how it is set up for this specific study area. This can be included as a subsection of the methodology since it is the primary tool used for analysis. o Data Collection and Sources: Include the collection of hydro-meteorological and spatial data as part of the methods. Mention how the data was processed and integrated into the model. o Model Calibration and Validation: Explain the calibration and validation processes for the SWAT model, detailing how the model was adjusted and tested for accuracy. 3. Results <ul style="list-style-type: none"> o Present the outcomes of the modeling, including sensitivity analysis and performance measures such as runoff sensitivity to temperature and rainfall changes. 4. Discussion <ul style="list-style-type: none"> o Interpret the results in the context of the study objectives and previous research, highlighting the implications of the findings. 5. Conclusions 	

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	<ul style="list-style-type: none"> Summarize the key findings and their potential applications, as well as suggestions for future research. 	
<p>Please write a few sentences regarding the scientific correctness of this manuscript. Why do you think that this manuscript is scientifically robust and technically sound? A minimum of 3-4 sentences may be required for this part.</p>	<p>Based on the content of the manuscript, it appears to be scientifically robust and technically sound for several reasons:</p> <ol style="list-style-type: none"> Rigorous Methodology: The manuscript employs the Soil and Water Assessment Tool (SWAT) hydrological model, which is a well-established and widely accepted tool for evaluating runoff sensitivity to climate variables such as temperature and rainfall. The model is calibrated and validated using historical data, which enhances the credibility of the results. Sensitivity Analysis: The study conducts a comprehensive sensitivity analysis by perturbing temperature and rainfall parameters and examining their impacts on runoff. The detailed scenarios and multiple perturbations (e.g., temperature increases and rainfall changes) contribute to the depth of the analysis. Use of Statistical Metrics: The calibration and validation processes use standard statistical measures like the Nash-Sutcliffe Efficiency (NSE) and the coefficient of determination (R^2) to evaluate the model's performance. The reported values (e.g., $R^2=0.85$ and $NSE=0.80$) indicate a strong agreement between the simulated and observed data, supporting the accuracy of the model. 	
<p>Are the references sufficient and recent? If you have suggestions of additional references, please mention them in the review form.</p>	<p>The manuscript's references are generally sufficient, but it would benefit from the inclusion of more recent studies to reflect the latest advancements in hydrological modeling and climate sensitivity analyses.</p>	
<p>Minor REVISION comments</p> <p>Is the language/English quality of the article suitable for scholarly communications?</p>	<p>The manuscript's English is generally understandable but could benefit from some revisions to improve its grammar, phrasing, and fluency. Some sentences are written in a somewhat passive or unclear voice. For instance, "The sensitivity of annual runoff to changes in rainfall or temperature as well as to a combination of both is found to be non-uniform across the sub-basin" could be revised to "Annual runoff sensitivity to changes in rainfall, temperature, or a combination of both varies across the sub-basin." In addition, there are inconsistencies in terminology, such as "sab-basin" instead of "sub-basin," which could confuse readers and should be corrected. There are occasional awkward phrases and grammatical errors. For example, "The SWAT model simulated reproduces the runoff with acceptable accuracy" could be revised to "The SWAT model successfully reproduces the runoff with acceptable accuracy." And some phrases are lengthy, it would be better to break them into short sentences to keep conciseness.</p>	
<p>Optional/General comments</p>		

PART 2:

	Reviewer's comment	Author's comment (if agreed with reviewer, correct the manuscript and highlight that part in the manuscript. It is mandatory that authors should write his/her feedback here)
<p>Are there ethical issues in this manuscript?</p>	<p><i>(If yes, Kindly please write down the ethical issues here in details)</i></p>	

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